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| 09/421,043      | 10/20/1999  | TOSHIO MASUDA        | 503.34403VP2        | 3576             |

20457 7590 12/06/2002

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| EXAMINER |
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| ART UNIT | PAPER NUMBER |
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1763

DATE MAILED: 12/06/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/421,043

Applicant(s)

MASUDA ET AL.

Examiner

Luz L. Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 21-25 and 27-51 is/are pending in the application.
- 4a) Of the above claim(s) 38-51 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-25, 27-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

Newly submitted claims 38-51 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: these claims are directed to the process whereas the other claims which have been pending in the application have been directed to apparatus claims. Furthermore, the process as claimed could be performed in a different apparatus, such as one without a temperature controller where the temperature is operator controlled.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 38-51 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 21-25 and 27-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto et al., U.S. Patent 5,843,277 in view of Hanaguri, JP 1-208499.

Goto et al. discloses a plasma etching apparatus for etching of a sample 115 comprising: an etching chamber 100 having a side wall and a jacket including heat exchange water jackets which are held inside of said side wall (see col. 8-lines 20-42), the sample 115 being disposed in said etching chamber; an evacuating system 170 which evacuates said etching chamber by an evacuation system; an etching gas supply 150 which supplies an etching gas into said etching chamber; a plasma generator 190 which generates a plasma for performing etching of said sample in said etching chamber; and a temperature controller which circulates a thermally conductive medium (water) through the interior of the jacket to control the temperature of the surface of the jacket in a range of 20-60 Celsius (see col. 8-lines 20-36 and Fig. 1 and its description).

Goto et al. does not expressly disclose that the jacket is detachable from the side wall of the etching chamber, and the specific thickness of the coating layer. With respect to the jacket being detachable from the side wall of the etching chamber, Hanaguri discloses a jacket 5 which is held inside of side wall 2 so as to form a wall

surface of the etching chamber and is detachable from the etching chamber (see translation at page 2, lines 8-10, page 9, lines 13-15, and Figs. 1-7). Furthermore, note that Hanaguri discloses that the apparatus enables a coating to be formed on the sidewall/detachable jacket (see page 4, lines 6-15 of the translation). In view of these disclosures, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Goto et al. to include the detachable jacket as suggested by Hanaguri et al. because this would allow more efficient cleaning of the apparatus in Goto et al..

Moreover, with respect to the deposition of a coating layer on the sidewall/jacket, note that the apparatus of Goto et al. is capable of performing the deposition of such layer, since the reference teaches, at col. 8, lines 20-36, that the sidewall is maintained at a range of temperatures from 20-60 Celsius (wider temperature ranges are also contemplated) which as stated by applicants in page 21, lines 16-24 and claims 22 and 28, enable deposition of the coating layer.

Concerning the thickness of the coating layer, such limitation is directed to a method limitation instead of an apparatus limitation, and since an apparatus is being claimed as the instant invention, the method teachings are not considered to be the matter at hand, since a variety of methods can be done with the apparatus. The method limitations are viewed as intended uses that do not further limit, and therefore do not patentably distinguish the claimed invention. Moreover, such limitation is considered to involve routine experimentation which has been held to be within the level of ordinary skill in the art. Therefore, one of ordinary skill in the art would have modified

the apparatus of Goto modified by Hanaguri as to deposit a coating layer having the claimed thickness in order to optimize the process being performed in the apparatus.

Claims 21-25 and 27-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanaguri, JP 1-208499A in view of Goto et al., U.S. Patent 5,843,277.

Hanaguri shows the invention substantially as claimed including a chamber 1 having a side wall and a detachable jacket 5 which is held inside of said side wall so as to form a wall surface 2 of said chamber and which is detachable from the side wall of said etching chamber, the sample 7 being disposed in said chamber 1, an evacuation system A which evacuates said chamber by an evacuation system; and a temperature controller which circulates water as a thermally conductive medium through the interior of the detachable jacket 5 so as to control a temperature of the surface of the jacket which faces the interior of the chamber within a predetermined range and enables depositing of a coating layer on the surface of the detachable jacket (see translation under "Application Examples").

Hanaguri does not expressly disclose the chamber being a plasma etching apparatus which includes an etching gas supply and a plasma generator, controlling the temperature within a range of zero to fifty degrees Celsius, and the specific thickness of the coating layer. However, Hanaguri does disclose at the paragraph bridging pages 3 and 4 of the translation that the invention has applicability in vacuum film formation devices. One of ordinary skill in the art at the time of the invention would realize plasma

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formation devices to be a suitable vacuum film formation device, as defined by Hanaguri. Furthermore, Goto discloses a plasma apparatus which can be used for plasma etching and includes a plasma generator 190 and a gas supply 150. In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Hanaguri so as to be a plasma apparatus since this is a suitable vacuum film formation device. Regarding the use of the plasma apparatus, it is submitted that a plasma apparatus can be used for either etching or depositing depending upon the particular gasses selected for the process.

Concerning the controlling of the temperature, it is submitted that the apparatus of Hanaguri is capable of controlling the temperature of the side wall within the claimed temperature range. Furthermore, the coating layer thickness is directed to a method limitation instead of an apparatus limitation, and since an apparatus is being claimed as the instant invention, the method teachings are not considered to be the matter at hand, since a variety of methods can be done with the apparatus. The method limitations are viewed as intended uses that do not further limit, and therefore do not patentably distinguish the claimed invention. Moreover, such limitation is considered to involve routine experimentation which has been held to be within the level of ordinary skill in the art. Therefore, one of ordinary skill in the art would have modified the apparatus of Hanaguri modified by Goto et al. as to deposit a coating layer having the claimed thickness in order to optimize the process being performed in the apparatus.

Claims 21-25 and 27-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinji, JP 09-275092 in view of Goto et al., U.S. Patent 5,843,277.

Shinji shows the invention substantially as claimed including an etching chamber having a side wall; a detachable jacket 12 for protecting the side wall of the etching chamber and which is detachable from the side wall of the etching chamber; a sample holder 5 which holds a sample 4 to be etched within the etching chamber; means for generating a plasma and for etching the sample within the etching chamber; means for preventing etching of a surface of the detachable jacket which is held inside of the side wall of the etching chamber and faces the plasma during etching of the sample by depositing a coating film on the surface of the detachable jacket facing the plasma during etching of the sample; and wherein a thermally conductive medium is circulated through the interior of said detachable member so as to control a temperature of a surface of the detachable jacket which faces the plasma in said etching chamber (see Fig. 1 and abstract).

Shinji does not expressly disclose a temperature controller to control the temperature of the surface of the detachable jacket in a range of 0 to 50 °C, the specific thickness of the coating layer, deposition of a coating layer on the sidewall/jacket, and the thickness of the coating layer. Goto et al. discloses a plasma etching apparatus for etching of a sample 115 comprising: an etching chamber 100 having a side wall and a jacket including heat exchange water jackets which are held inside of said side wall (see col. 8-lines 20-42), the sample 115 being disposed in said etching chamber; an evacuating system 170 which evacuates said etching chamber by an evacuation



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system; an etching gas supply 150 which supplies an etching gas into said etching chamber; a plasma generator 190 which generates a plasma for performing etching of said sample in said etching chamber; and a temperature controller which circulates a thermally conductive medium (water) through the interior of the jacket to control the temperature of the surface of the jacket in a range of 20-60 Celsius (see col. 8-lines 20-36 and Fig. 1 and its description). In view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Shinji as to further comprise the temperature controller of Goto et al. in order to optimize and better control the temperature of the apparatus. Moreover, with respect to the deposition of a coating layer on the sidewall/jacket, note that the apparatus of Shinji modified by Goto et al. is capable of performing the deposition of such layer, since the Goto et al. reference teaches, at col. 8, lines 20-36, that the sidewall is maintained at a range of temperatures from 20-60 Celsius (wider temperature ranges are also contemplated) which as stated by applicants in page 21, lines 16-24 and claims 22 and 28, enable deposition of the coating layer.

Concerning the thickness of the coating layer, such limitation is directed to a method limitation instead of an apparatus limitation, and since an apparatus is being claimed as the instant invention, the method teachings are not considered to be the matter at hand, since a variety of methods can be done with the apparatus. The method limitations are viewed as intended uses that do not further limit, and therefore do not patentably distinguish the claimed invention. Moreover, such limitation is considered to involve routine experimentation which has been held to be within the level

of ordinary skill in the art. Therefore, one of ordinary skill in the art would have modified the apparatus of Shinji modified by Goto et al. as to deposit a coating layer having the claimed thickness in order to optimize the process being performed in the apparatus.

Claims 21-25 and 27-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinichiro, JP 63-005526A in view of Goto et al., U.S. Patent 5,843,277.

Shinichiro shows the invention substantially as claimed including a plasma etching apparatus for etching a sample comprising: an etching chamber 1 having a side wall; detachable jacket 4 provided with a heating unit for protecting the side wall of the etching chamber and which is detachable from the side wall of the etching chamber (see last three lines of "Constitution"); a sample holder which holds a sample 7 to be etched within the etching chamber; means for generating a plasma 6 and for etching the sample within the etching chamber; and means for preventing etching of a surface of the detachable jacket which is held inside of the side wall of the etching chamber and faces the plasma during etching of the sample by depositing a coating film on the surface of the detachable jacket facing the plasma during etching of the sample (see Fig. 1 and abstract).

Shinichiro does not expressly disclose a temperature controller which circulates a thermally conductive medium to control the temperature of the surface of the detachable jacket in a range of 0 to 50 °C, the specific thickness of the coating layer, deposition of a coating layer on the sidewall/jacket, and the thickness of the coating layer. Goto et al.

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discloses a plasma etching apparatus for etching of a sample 115 comprising: an etching chamber 100 having a side wall and a jacket including heat exchange water jackets which are held inside of said side wall (see col. 8-lines 20-42), the sample 115 being disposed in said etching chamber; an evacuating system 170 which evacuates said etching chamber by an evacuation system; an etching gas supply 150 which supplies an etching gas into said etching chamber; a plasma generator 190 which generates a plasma for performing etching of said sample in said etching chamber; and a temperature controller which circulates a thermally conductive medium (water) through the interior of the jacket to control the temperature of the surface of the jacket in a range of 20-60 Celsius (see col. 8-lines 20-36 and Fig. 1 and its description). In view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Shinichiro as to use a temperature controller which circulates a thermally conductive medium such as the one shown by Goto et al. since such means is a known suitable alternative temperature control means and the use of such means in the apparatus of Shinichiro will optimize and better control the temperature of the apparatus. Moreover, with respect to the deposition of a coating layer on the sidewall/jacket, note that the apparatus of Shinichiro modified by Goto et al. is capable of performing the deposition of such layer, since the Goto et al. reference teaches, at col. 8, lines 20-36, that the sidewall is maintained at a range of temperatures from 20-60 Celsius (wider temperature ranges are also contemplated) which as stated by applicants in page 21, lines 16-24 and claims 22 and 28, enable deposition of the coating layer.

Concerning the thickness of the coating layer, such limitation is directed to a method limitation instead of an apparatus limitation, and since an apparatus is being claimed as the instant invention, the method teachings are not considered to be the matter at hand, since a variety of methods can be done with the apparatus. The method limitations are viewed as intended uses that do not further limit, and therefore do not patentably distinguish the claimed invention. Moreover, such limitation is considered to involve routine experimentation which has been held to be within the level of ordinary skill in the art. Therefore, one of ordinary skill in the art would have modified the apparatus of Shinichiro modified by Goto et al. as to deposit a coating layer having the claimed thickness in order to optimize the process being performed in the apparatus.

### ***Response to Arguments***

Applicant's arguments filed 10/4/02 have been fully considered but they are not persuasive. With respect to the disregarding by applicant of the Shinichiro, JP 63-005526A and the Shinji, JP 09-275092 references, the examiner notes that due to applicant's amendments to the claims such references are properly applied as above.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

With respect to applicant's argument regarding the Hanaguri reference, it should be noted that as broadly claimed, the apparatus of Hanaguri includes a side wall 1, to which a member 2 is detachably held inside said side wall. Furthermore, note that the member 2 includes means 5 to circulate a thermally conductive medium.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that the method limitations should be given patentable weight in the apparatus claims, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 305-4545. The examiner can normally be reached on Monday-Thursday from 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills, can be reached on 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are 872-9310 for regular communications and 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-1782.



Luz L. Alejandro  
Patent Examiner  
Art Unit 1763

December 4, 2002

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